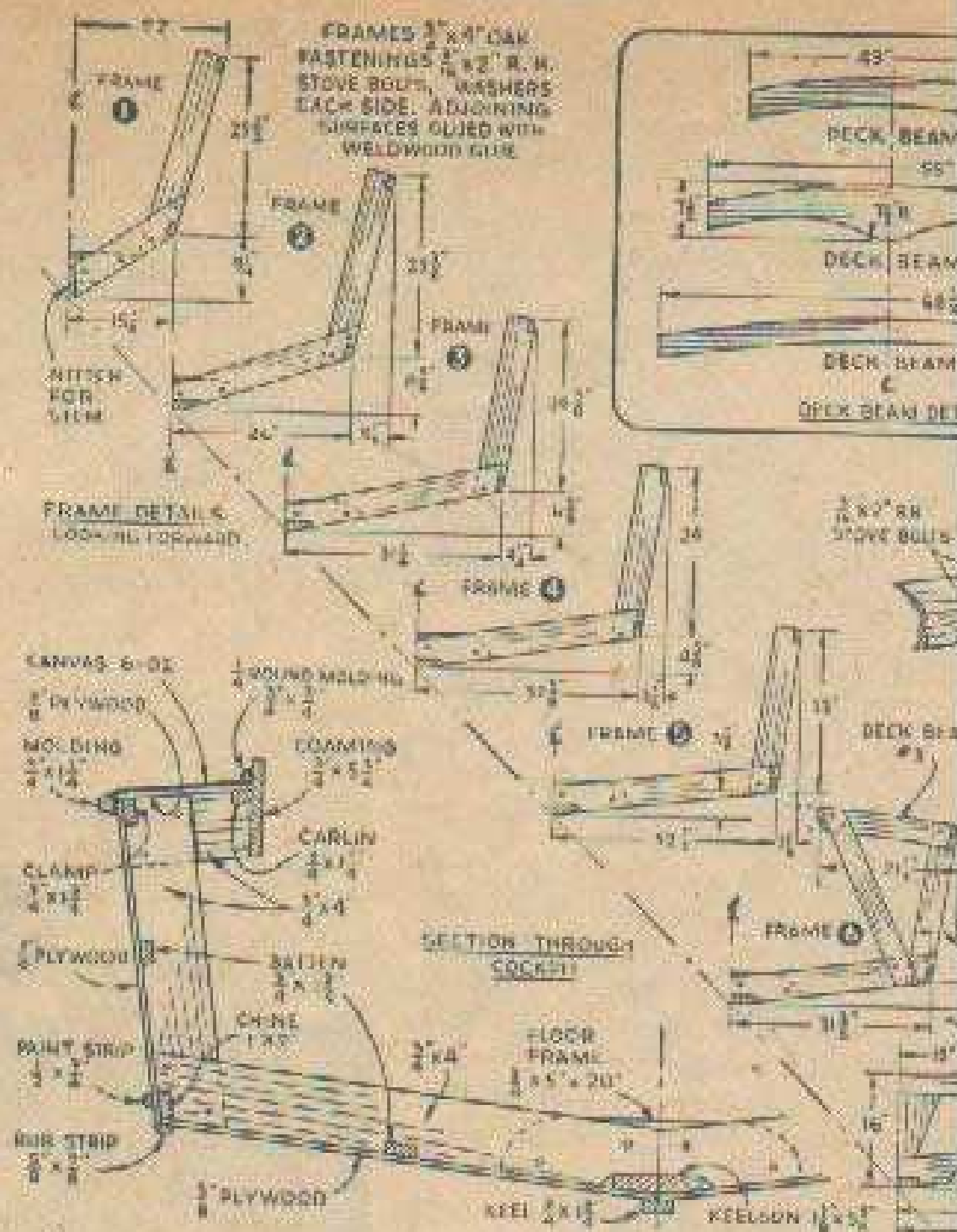


Notch $\frac{3}{4}$ x $1\frac{1}{4}$ in. battens flush into frames as indicated. Locate bottom battens parallel to the keel, 16 in. from centerline, and side battens midway between clamp and chines. Fasten battens to frames with one 2 in. #10 fh screw to each joint.

Before applying $\frac{3}{8}$ in. plywood planking, drill lead holes for all fastenings and soap threads of all screws to be inserted. Coat all contact surfaces except keel and chines with resin glue and coat keel and chines with aviation glue and cloth strips; this combination of glues seems to provide the best service. Begin planking by laying a sheet of plywood with inner edge adjacent to centerline of keel, mark along chines, remove plywood and cut to shape. Then, using shaped piece as a pattern for opposite side mark and cut to shape.

Pour hot water on forward ends of bottom plywood only and plywood at the stem will easily bend in place. Fasten plywood planking in place

with $1\frac{1}{4}$ in. #8 fh screws spaced 4 in. apart, using a double row of screws on and keel. Trim edges of ply-



PLYWOOD REQUIRED:

Sides	2 pcs.	$\frac{3}{8}$ " x 4' x 18'
Bottom	2 pcs.	$\frac{3}{8}$ " x 4' x 16'
Decking, flooring, hanks	4 pcs.	$\frac{3}{8}$ " x 4' x 10'
Transom and beam knees	1 pc.	$\frac{3}{8}$ " x 4' x 8'
Cabin roofing and hanks	3 pcs.	$\frac{3}{8}$ " x 4' x 7'
Cabin sides	1 pc.	$\frac{3}{8}$ " x 4' x 8'

MATERIALS LIST—RANGER

Fin. Exterior Grade AB Mahogany, Ex. AB

Transom frame	1 pc.
Cabin moldings	3 pcs.
Cabin corner posts	1 pc.
Cabin door	2 pcs.
	12 pcs.

FASTENINGS REQUIRED:

1 Gross	$\frac{3}{8}$ " No. 6 f
2 Gross	1" No. 8 f
8 Dozen	$1\frac{1}{2}$ " No. 8 f
2 Gross	$1\frac{1}{2}$ " No. 8 f
1 Gross	2" No. 10 f
6 Dozen	$\frac{1}{16}$ " x 2" roundhead stove bolts, wash
4	$\frac{1}{8}$ " x $1\frac{1}{2}$ "

GLUES REQUIRED:

- 1 Quart or 2 lb. Weldwood Resin Glue
- 1 Quart Kuhl's Aviation Glue
- 1 Gallon Kuhl's Canvas Cement

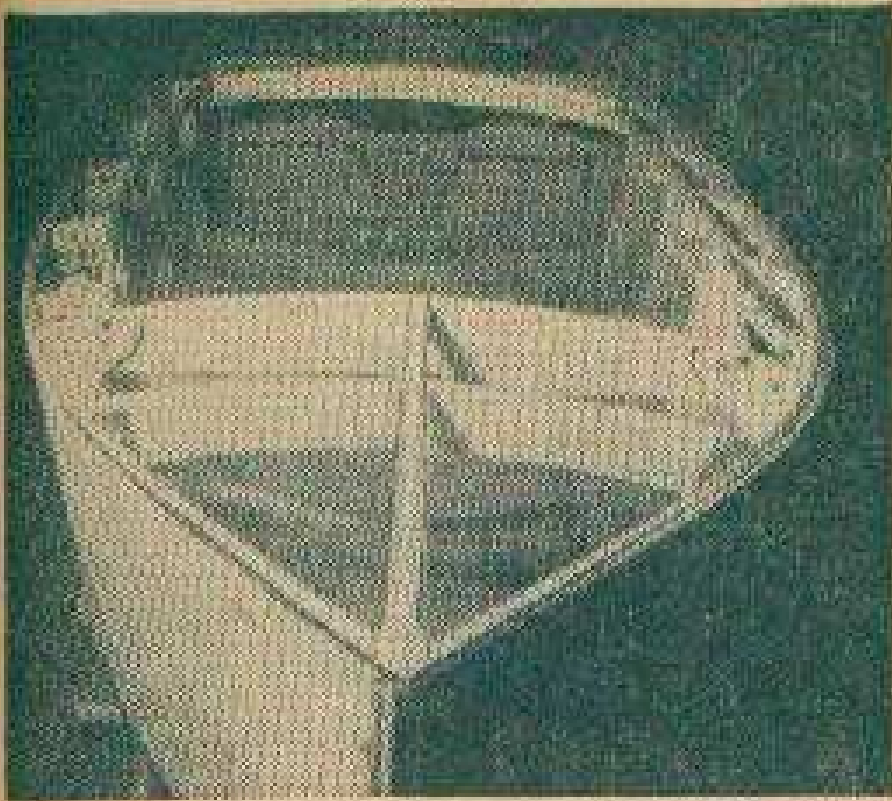
HARDWARE AND FITTINGS REQUIRED:

- 2 pcs. 1" dia. aluminum tubing, each 4'
- Machine Company, 87 Warren St. New
- 1 Bow plate
- 1 Mooring bit
- 1 Pr. Bow checks
- 2 Streamline cleats $2\frac{1}{2}$ "
- 2 Lifting or hatch headies
- 1 Pc. Window screen (bronze) 2' x 4'
- Aluminum letters and numbers (as required)

LUMBER REQUIRED:

Inner Keel	1 pc.	$1\frac{1}{2}$ " x $5\frac{3}{4}$ " x 14'
Outer Keel	1 pc.	$\frac{3}{4}$ " x $1\frac{1}{2}$ " x 14'
Chines	2 pcs.	1" x 2" x 10'
Clamps	3 pcs.	$\frac{3}{4}$ " x $1\frac{1}{2}$ " x 18'
Frames	7 pcs.	$\frac{3}{4}$ " x 4" x 10'
Deck beams	1 pc.	$\frac{3}{4}$ " x $7\frac{1}{2}$ " x 10'
Cabin beams	1 pc.	$\frac{3}{4}$ " x $11\frac{1}{4}$ " x 12'
Moldings	2 pcs.	$\frac{3}{4}$ " x $1\frac{1}{4}$ " x 18'
Paint moldings	2 pcs.	$\frac{1}{2}$ " x $\frac{3}{4}$ " x 16'
Rub moldings	2 pcs.	$\frac{3}{8}$ " x 1" x 18'
Cabin uprights	2 pcs.	$\frac{3}{4}$ " x $1\frac{1}{4}$ " x 8'
Cockpit beams	1 pc.	$\frac{3}{4}$ " x 4" x 10'
Cabin carline	3 pcs.	$\frac{3}{4}$ " x $1\frac{1}{4}$ " x 8'
Floor frames	1 pc.	$\frac{3}{4}$ " x $5\frac{3}{4}$ " x 10'
Floor beams	6 pcs.	$\frac{3}{4}$ " x $2\frac{1}{2}$ " x 10'
Cockpit carlins	2 pcs.	$\frac{3}{4}$ " x $1\frac{1}{4}$ " x 12'
Stem	1 pc.	$2\frac{1}{2}$ " x 5" x 8'
Outer stem	1 pc.	$2\frac{1}{2}$ " x 8" x 10'
Form	1 pc.	$1\frac{1}{2}$ " x $11\frac{1}{2}$ " x 14'

Hardware furnished by Kaiser & Co., Street Chicago 7, Illinois.

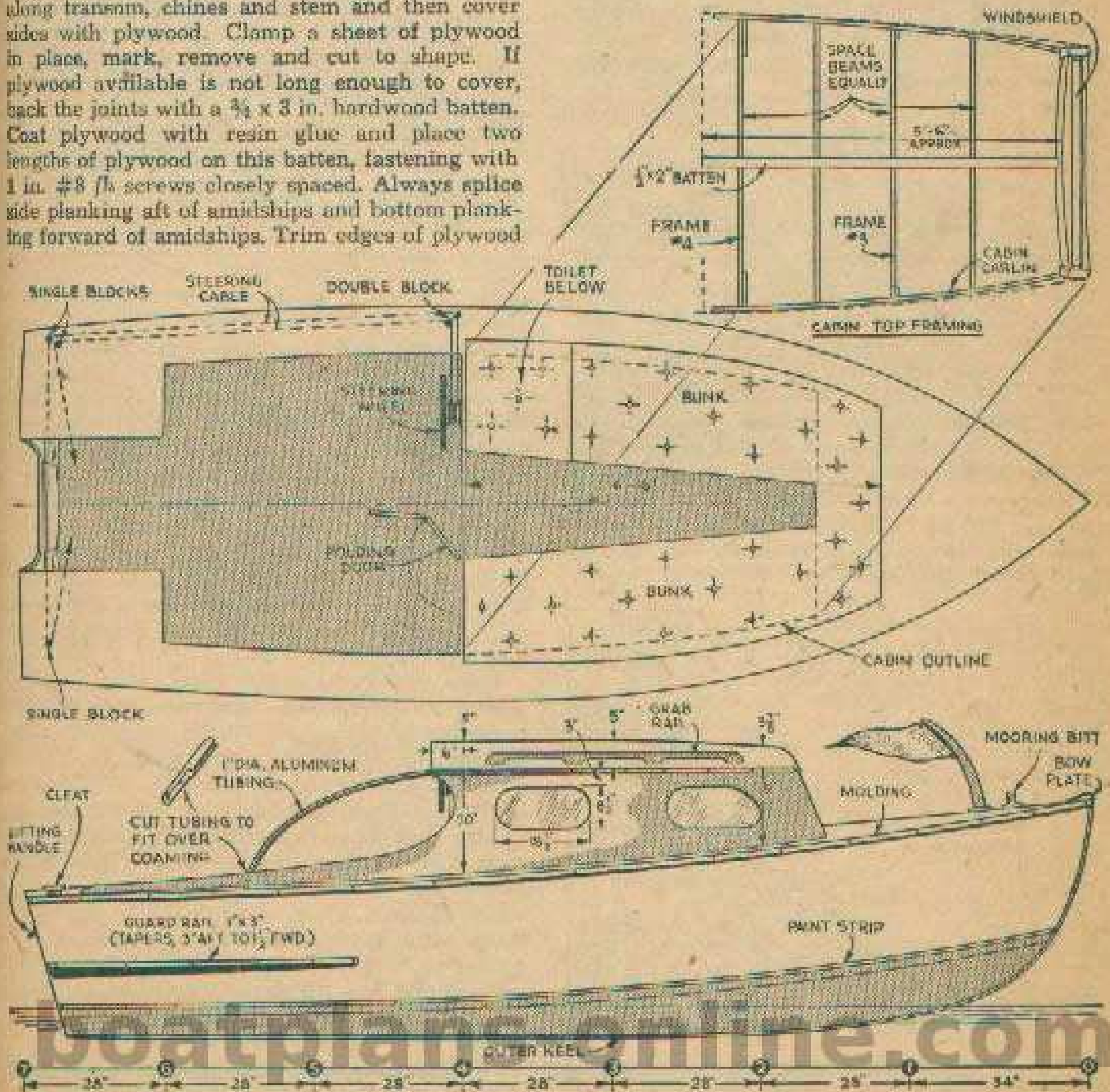


Low view of planked hull after removing from building form.

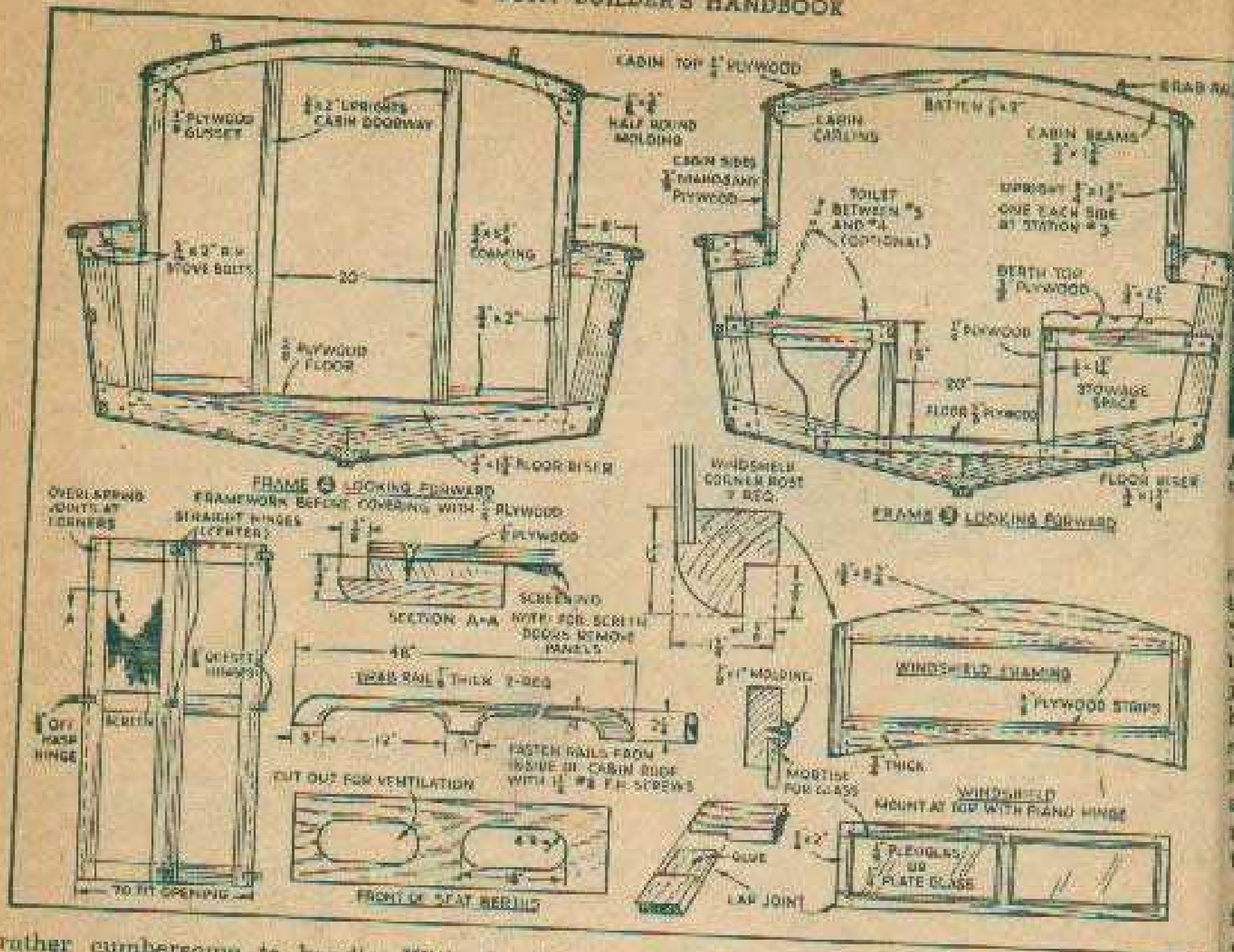
along transom, chines and stem and then cover sides with plywood. Clamp a sheet of plywood in place, mark, remove and cut to shape. If plywood available is not long enough to cover, back the joints with a 3/4 x 3 in. hardwood batten. Coat plywood with resin glue and place two lengths of plywood on this batten, fastening with 1 in. #8 f/s screws closely spaced. Always splice side planking aft of amidships and bottom planking forward of amidships. Trim edges of plywood

evenly at all points and cover exposed edges along stem with an outer 3/4 x 1 3/4 in. stem piece softened with hot water; bend in place and fasten with 2 in. #10 f/s screws. Cover the keel joint of plywood with an outer keel, which is screw-fastened in place with 2 in. #10 f/s screws. Space screws on both outer stem and outer keel about 8 in. apart. Bevel outer edges of stem to conform to the sweep of the sides and then fasten bottom rub strips to hull with 1 in. #8 f/s screws, and paint strips to hull with 3/4 in. # 6 f/s screws, spaced about 6 in. apart. Remember to drill lead holes and countersink for these fastenings.

Before turning hull over let's paint the bottom and sides. First apply one coat of clear Firzite, followed by three coats of flat white undercoat. Tint bottom coats of white to match final enamel coats or bottom paint to be used. After it is dry, remove hull from the form with the help of two or three husky gentlemen as the hull is now



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rather cumbersome to handle. With the form removed and before any wood structure is added, paint the interior with three coats.

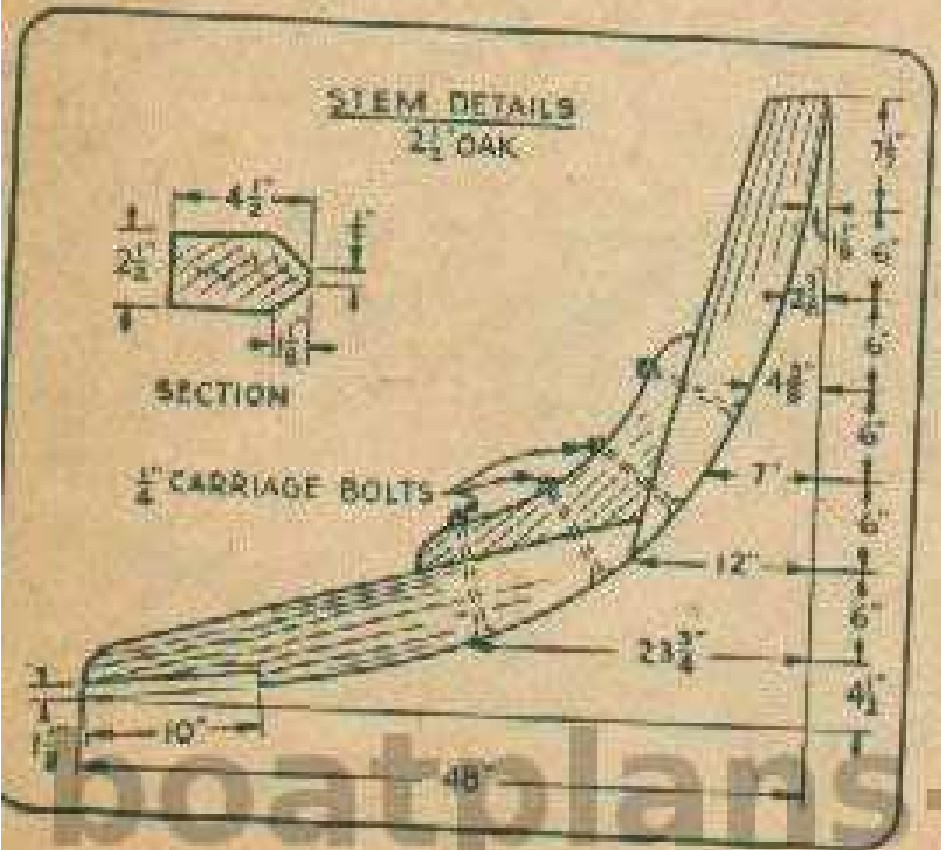
Now fasten deck beams in place with two $\frac{1}{16}$ x 2 in. stove bolts to each joint. Secure #2 forward beam in place by screw-fastening a $\frac{3}{4}$ in. plywood knee to sides of hull and bolting beam to knee as shown. With fore and aft beams in place, bolt side cockpit beams ($\frac{3}{4}$ x 4 in. oak) with $\frac{3}{16}$ x 2 in. bolts to side frames as shown. Notch the carlins flush into side beams and fasten with one $1\frac{1}{4}$ in. #8 fh screw to each

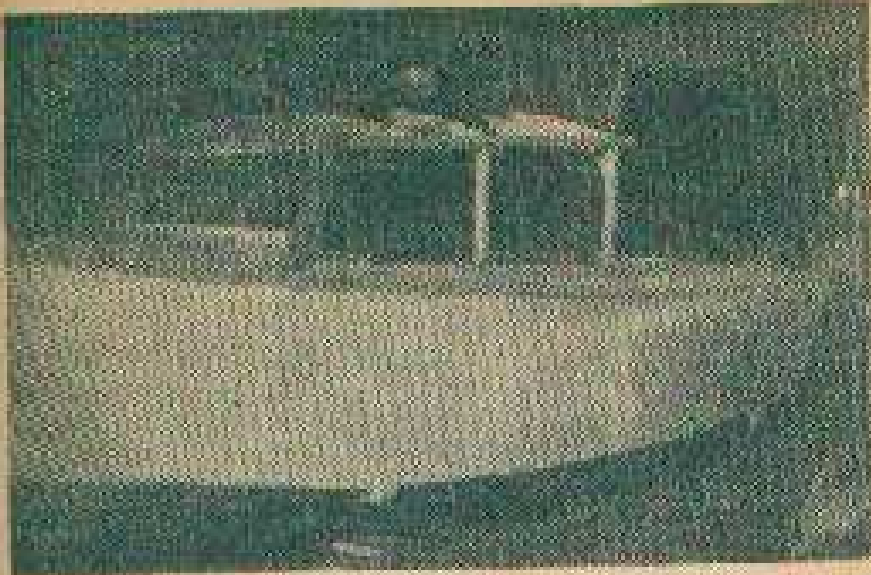
joint. Now trim joints evenly, notch a center batten flush and screw-fasten into deck beams. Deck beams and side deck beams are covered with $\frac{3}{8}$ in. plywood. Use scraps of plywood to cover the side decks and back the joints with a batten which is bonded with resin glue and screw-fastened to the joints. Fasten plywood decking at all points with $1\frac{1}{4}$ in. #8 fh screws spaced about 3 in. apart. Trim deck planking evenly at all points and install $\frac{3}{4}$ x $5\frac{1}{4}$ in. coamings, one on each side. Mark and saw them to fit at each end and then fasten them in place with 2 in. #10 fh screws into ends of side beams and $1\frac{1}{2}$ in. #8 fh screws inserted through coamings into carlins.

When you have finished the frame, the next step is to cover entire deck with 6-oz. canvas cemented in place with Kuhl's Canvas Cement. Lap canvas over sheer edges about $1\frac{1}{4}$ in. and trim evenly along the coamings.

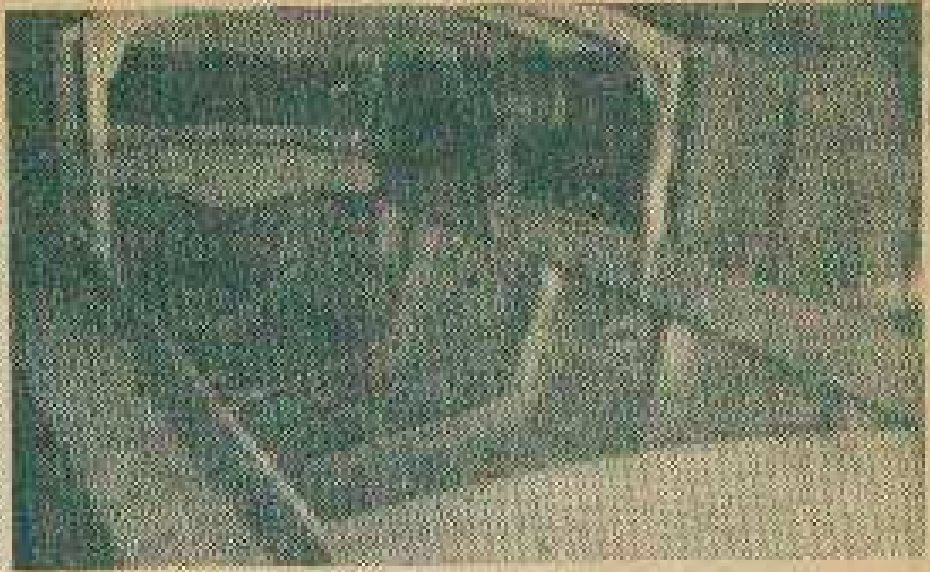
After drilling lead holes and countersinking for the heads, attach moldings to sheer edges with 2 in. No. 10 fh screws spaced 8 in. apart. Then attach windshield corner posts and framing, cabin uprights, cabin carlins and, finally, cabin beams, which are sawed to the camber shown, spaced as indicated and screw-fastened to carlins and uprights. With all beams in place, notch a center joint batten as shown flush into cabin beams.

Cover sides of cabin with $\frac{3}{8}$ in. thick mahogany plywood, fastened in place with $1\frac{1}{4}$ in. No. 8 fh





Above, putting cabin top beams in place. Right, view of cabin framing looking forward. Note intermediate beams are located halfway between stations.



screws spaced about 4 in. apart. Be sure to retain curved lines for after ends of cabin as shown. You may cut window openings now or leave them until later. To plank roof of cabin, have center joints of $\frac{1}{4}$ in. exterior plywood land upon center batten and screw-fasten them with 1 in. No. 8 *ft* screws spaced about 4 in. apart. Note that cabin roof extends aft of the after upright about 6 in. and allow roofing to extend over cockpit this much. Saw out a beam and screw-fasten it to this plywood edge for reinforcement.

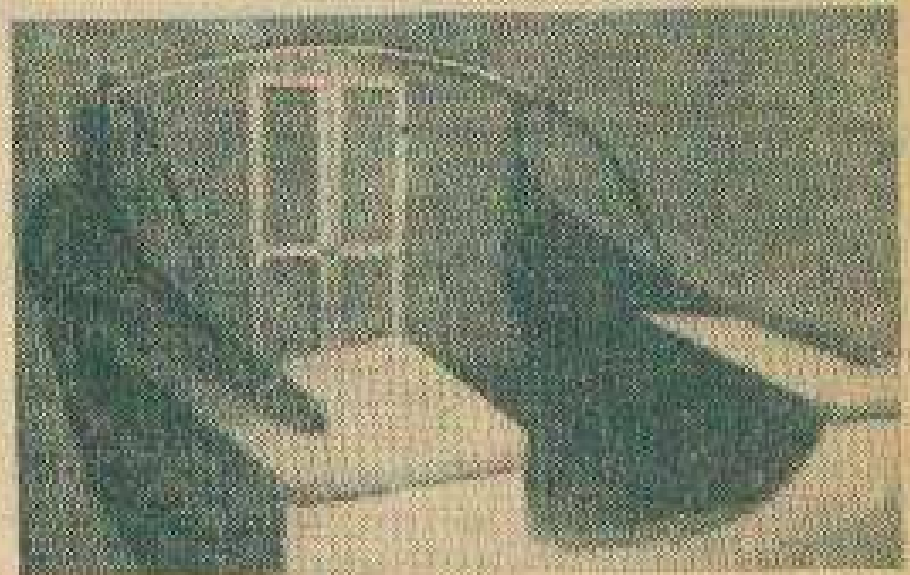
Cover cabin roof with 6-oz. canvas, cemented in place with canvas cement; turn over edges of canvas around edges of cabin and cover cabin edge with a $\frac{1}{2}$ x $\frac{3}{4}$ in. molding rounded to shape and screw-fastened with $\frac{3}{4}$ in. No. 6 *ft* screws spaced about 3 in. apart. If you haven't done it, cut window openings; now round off plywood edges and cover openings from the inside with $\frac{3}{8}$ in. Plexiglas, which should overlap window opening about $\frac{3}{4}$ in. Secure Plexiglas with a plywood or Masonite rim screw-fastened through rim and Plexiglas into cabin side with $\frac{3}{4}$ in. No. 6 *ft* screws.

Make a windshield as shown, insert Plexiglas in rabbetted joint and hang windshield with a piece of continuous piano hinge. Add a stay fastener which will maintain windshield in an open or closed position.

Secure the $\frac{3}{8}$ in. plywood flooring in the after cockpit to the frames with $\frac{3}{4}$ x $2\frac{1}{4}$ in. floor frames, screw-fastening in place with $1\frac{3}{4}$ in. No. 8 *ft* screws. Fasten plywood directly to floor frames with $1\frac{1}{4}$ in. No. 8 *ft* screws. To gain increased headroom the cabin floor is lower than the cockpit floor and, although you install cabin flooring as you did the after cockpit floor, it's best to place cabin floor in position after bunks are in place and let the flooring butt against the bunks. Install bunks as shown, making sure they are level fore and aft and athwartships. Top sides of bunks are $\frac{3}{4}$ in. plywood while lower face sides are $\frac{1}{2}$ in. plywood with cut outs as indicated for duffel stowage under the bunks and ventilation. A small marine toilet may be installed under the bunks as shown. Install toilet according to manufacturer's directions, and on

the opposite side of the cabin, show a water tank or load the opposite bunk to balance the weight of this toilet; the weight is small but at rest without passengers the hull may not trim correctly.

You can make an effective door as shown and its dual screening and plywood panels make it adaptable to either warm or cool weather. Make the grab rails as shown and fasten them from inside the hull. As a suggestion for the final coats of paint, paint the bottom green, sides white, decks buff or light green or light blue, and finish cabin sides natural and then varnish.



Rear view of cabin showing folding door.

A list of fittings you can use is given on page 7.

Any outboard motor smaller than the Big Twin will not plane Ranger; it requires a minimum of 25 *hp* to properly plane this hull with passengers and equipment aboard. If you don't care about the speed and planing action a smaller outboard motor may be used. If a long shaft outboard motor is used for Ranger, it won't be necessary to cut the transom down nearly so much as it would if the standard shaft size outboard is used. Any Evinrude motor, incidentally, may have a long shaft adapted to it at a nominal cost to the builder.

■ Craft Print No. 24 in enlarged size for building the Ranger is available at 50¢. SPECIAL QUANTITY DISCOUNT! If you order two or more craft prints (this or any other prints), you may deduct 10¢ from the regular price of each print. Hence, for two prints deduct 20¢; three prints, deduct 30¢, etc. Order by print number, enclosing remittance two U.S. 10¢ or stamps from Craft Print Dept. B150, Scribner 850 Metropolitan, 350 East Ohio Street, Chicago 14, Illinois. See coupon on page 192.